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ON THE PHEASANT OF ST. HELENA.

By Henry Seebohm.

Visitors to the Indian and Colonial Exhibition may see, in the small court allotted to the Island of St. Helena, a series of Pheasants from that isolated dependency of the British Crown. These Pheasants belong to the species described by Gmelin as *Phasianus torquatus*, one of the many species to which Gmelin gave a Latin name in his edition of the 'Systema Natura' of Linnæus, published in 1788, from descriptions borrowed from Latham's 'General Synopsis of Birds,' published in volumes from 1781 to 1785. This species, commonly called the Chinese Ring-necked Pheasant, has been introduced into England, and has interbred with the previously introduced Colchican Pheasant, *Phasianus colchicus*, to such an extent that it is almost impossible to obtain examples in this country that are not mongrels between the two species [or between these and the Japanese *Phasianus versicolor*.—Ed.]. In addition to the white ring round the neck, one of the most conspicuous differences between the two first-named species is to be found in the predominant colour of the lower back, which is blue-grey or lavender-colour in the Chinese species, and chestnut-red in the Persian bird. It is a remarkable fact that the various species of Pheasants, all closely allied to our bird, which inhabit the semi-tropical regions of Asia from Turkey to China, are divided into two groups by the meridian of Calcutta, those to the west of that line having red lower backs,

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and those to the east of it having blue lower backs. On both sides of the line are species with white collars and species without white collars, but Latham confounded the eastern white-collared species with the western ones. The great Russian traveller, Pallas, was the first ornithologist to distinguish the latter by the name of *Phasianus mongolicus*. Both writers regarded them as only varieties of the Common Pheasant, a theory confirmed by the curious fact that they freely interbreed with each other, and produce a fertile progeny.

Latham remarks of his Ring Pheasant that it is "pretty common at St. Helena"; but its true habitat is Eastern Asia. The Chinese Ring-necked Pheasant is a resident in the valley of the Amoor in South-Eastern Siberia, in China, and in Eastern Mongolia and Thibet. There seems to be some historical evidence that it was introduced on the Island of St. Helena by the Portuguese in 1513.* Latham (Gen. Syn., vol. ii., part ii., p. 715, note), says, on the authority of Forster, "introduced by the Governor," but without mentioning the precise date. It was probably, however, not very long after the discovery of the island, for Capt. Cavendish, who visited St. Helena in June, 1588, and spent twelve days there, found that Pheasants were then abundant there. He says:—"There are likewise no less plenty of Pheasants in the island, which are also very big and fat."†

At the present time, according to Mr. Melliss ('St. Helena,' 1875, p. 94), "they exist abundantly, inhabiting the interior of the island, and quite maintain the characteristics mentioned by Cavendish. They are protected by game-laws, which permit them to be killed on payment of the license for six weeks in the summer or autumn of each year; and hundreds of them are generally killed during one shooting season. They find plenty of covert, and generally make their nests in the long tufty fields of cow-grass (*Paspalum scrobiculatum*)."

After having been thus isolated from the parent stock for 373 years, in a very different climate from that of South Siberia, and doubtless having been fed for that length of time on somewhat different food, one might expect to find that they had become to some extent differentiated from the original form.

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* "The island first got its name from the Portuguese, who discovered it in the year 1501, on St. Helen's-day."—Osbeck, 'Voyage,' vol. ii. p. 76. According to other authorities the date of its discovery was May 21st, 1502.

† 'Callander's Voyages,' vol. i. p. 424 (1776).

By the kindness of Col. Edmund Palmer I have had an opportunity of comparing the series of St. Helena Pheasants with a series of the same species from Siberia, China, the Corea, and Formosa. The Pheasant inhabiting the last-named island is so much paler in the ground colour of the upper back and flanks that Mr. Elliot described it as a distinct species under the name of *Phasianus formosanus* (Proc. Zool. Soc. 1870, p. 406). There is, however, no doubt that it can only claim to be subspecifically distinct, as examples from the Corea are intermediate in colour. The St. Helena birds, though they have also enjoyed the advantages, or disadvantages, of island life for so many centuries, have retained the typical colour, and, after a careful examination, the only difference that I have been able to discover between them and Siberian examples is so slight that it might almost escape detection. In the Siberian Pheasant the feathers which form the white ring round the neck have narrow black margins on the nape. In the St. Helena Pheasant these black margins are not quite so narrow, and are also more or less distinctly traceable on the white feathers of the sides and front of the neck, as well as on the nape.

This interesting fact must not be regarded as tending in any way to lessen our estimate of the importance of isolation in producing differentiation. Strictly speaking isolation does *not* directly produce differentiation. Logically stated, the facts are these: individual variation is produced by a variety of causes, change of climate, change of food, change of habits, the action of the two former being probably direct, and principally affecting colour, that of the latter being indirect and affecting the structure of the various organs, whilst they are in a more or less plastic condition between the birth and arrival at maturity of the animal, the organs being developed by use or degraded by disuse. These variations are hereditary, and the part that isolation plays is that of preventing interbreeding from obstructing the action of Natural Selection in causing the rapid accumulation or continuation of the variations which are advantageous to the species. The inference to be drawn is that in the life of even so variable a bird as a Pheasant, and even under conditions apparently so favourable to differentiation as those of the complete isolation of a Siberian bird on an oceanic island in the tropics, three centuries and a half is too short a time to have produced any important differentiation.

[It is difficult to reconcile the statement of Cavendish with that of G. Forster, quoted by Latham (*ut supra*), because, although no date is mentioned, Forster's words certainly imply that Pheasants were introduced into St. Helena by the Governor of the island (Mr. Skottoe) who entertained him in 1775. In his 'Voyage round the World in H.M. Sloop "Resolution," commanded by Capt. Cook, during the years 1772, -3, -4, and -5' (2 vols. 4to, 1777), we find (vol. ii. p. 567) that the ship reached St. Helena on the 16th May, 1775, and on the following day Forster, in company with Capt. Cook and the Hon. Mr. Stuart, "took an airing on the hills." On May 18th they revisited the hills, and "in our return," he says, "we saw several coveys of Partridges, which are of the small red-legged sort common on the coast of Africa. We likewise saw several beautiful Ring Pheasants, which have been introduced into the island by the Governor, together with Guinea-hens and Rabbits. There is at present a penalty of five pounds for killing a Pheasant, by which means they multiply so fast that the restriction will soon be needless." We must therefore conclude either that Cavendish in 1588 mistook some other birds for Pheasants, which seems hardly possible, or that Forster in 1775 was mistaken in supposing that Pheasants were introduced into the island *for the first time* by the Governor who entertained him, Mr. Skottoe.—Ed.]

ON THE MOULTING OF THE FLIGHT-FEATHERS IN THE COMMON WILD DUCK.

By the Editor.

A subject of some interest to naturalists and sportsmen is the different mode in which the moulting of the quill-feathers is effected in the sexes of the Common Wild Duck, *Anas boscas*; and yet it is curious how few persons, comparatively speaking, are aware of it, although the facts have long been made known.

Nearly fifty years ago Charles Waterton made some experiments on the subject by keeping wild ducks in confinement between the months of May and November, and watching them attentively during their moult. The results of his observation were embodied in an article "on the habits of the Mallard," published in the first series of his 'Essays on Natural History' (pp. 196—202). From this article we make the following extract:—

> "At the close of the breeding season the drake undergoes a very remarkable change of plumage: on viewing it all speculation on the part of the ornithologist is utterly confounded; for there is not the smallest clue afforded him by which he may be enabled to trace out the cause of the strange phenomenon. The drake, for a very short period of the year, is so completely clothed in the raiment of the female that it requires a keen and penetrating eye to distinguish the one from the other. About the 24th of May the breast and back of the drake exhibit the first appearance of a change of colour. In a few days after this the curled feathers above the tail drop out, the grey feathers begin to appear amongst the lovely green plumage which surrounds the eyes. Every succeeding day now brings marks of rapid change. By the 23rd of June scarcely one single green feather is to be seen on the head and neck of the bird. By the 6th of July every feather of the former brilliant plumage has made its disappearance, and the male has received a garb like that of the female, though of a somewhat darker tint. In the early part of August this new plumage begins to change gradually, and by the 10th of October the drake will appear again in all his rich magnificence of dress, than which scarcely anything throughout the whole wide field of nature can be seen more lovely, or better arranged to charm the eye of man. This description of the change of plumage in the Mallard has been penned down with great care. I enclosed two male birds in a coop from the middle of May to the middle of October, and saw them every day during the whole of their captivity. Perhaps the moulting in other individuals may vary a trifle with regard to time. Thus we may say that once every year, for a very short period, the drake goes, as it were, into an eclipse; so that, from the early part of the month of July to about the first week in August, neither in the poultry-yards of civilised man, nor through the vast expanse of Nature's wildest range, can there be found a drake in that plumage which, at all other seasons of the year, is so remarkably splendid and diversified."

These observations of Waterton seem not only to have escaped the attention of most English sportsmen, but to have been overlooked also by a well-known French naturalist, Baron d'Hamonville, who for some years past has been engaged in making observations of his own on the subject, and who not long since published the result of his investigations in the 'Bulletin de la Société Zoologique de France' (vol. ix., pp. 101—106). As probably few of our readers may have an opportunity of consulting this essay, we have thought it worth while to translate the most important portion of it relating to the moulting of Wild Ducks, not omitting certain other observations on the habits of these birds at different seasons of the year, which are worth perusal, as coming from the pen of an accomplished sportsman and naturalist.

Passing over some generalities, and a reference to a paper by M. Gerbe, published in the 'Revue et Magasin de Zoologie' (1875, pp. 271—277), on the mode in which the flight-feathers are moulted in certain Puffins and Divers, we come to the following sentence, which contains the sum and substance of the observations which are subsequently detailed:—"While the male of *Anas boscas* loses the power of flight with the loss of his primaries, the female Wild Duck moults gradually, like the majority of birds, without being deprived for a moment of the use of her wings."

These facts, says Baron d'Hamonville, have long been known to us, but we were anxious to study them more attentively before making them public. We believe we are now in a position to do so. The Wild Ducks, which take up their abode on our pools in separate families till the beginning of autumn, collect at that season in large flocks of several hundreds, without ever mingling either with others of their own species which arrive on their migration, or with any of the numerous other wildfowl which about the same time visit our waters to seek food and shelter. When the hard frosts of winter supervene, and the pools are entirely frozen over, our native ducks do not leave them, but congregate in the middle, though every evening at dusk they take flight to the streams, where the less frigid water furnishes them with an abundant supply of cress and other aquatic plants. But, alas! at the very place where they seek life they not unfrequently meet with death, for the sportsman who knows their habits lies in wait there to shoot them at flight-time. In hard winters, when the ice completely invades their domain and they are temporarily forced to abandon it, they betake themselves to running water, until at the first appearance of thaw they return at once to their accustomed haunt, which they do not quit for the rest of the year.

Early in March, especially if the weather be open, the birds begin to pair, and visit the ponds to select the favoured spot which is to shelter their young. Formerly they used to make their nests amongst the tufted reeds by the small pools in the forest adjoining the larger meres, but since collectors have made such a raid upon them, they have modified their habits, and taken to building on the edge of the water, where the surrounding growth is thickest, especially amongst thorns and willows.

Towards the end of April, if we row about these meres in a boat, instead of putting up a pair of Wild Ducks now and then, we only see the Mallard, since the female, having finished laying her full complement of ten or a dozen eggs, is now sitting.

Incubation lasts twenty-eight days, the earliest young birds being hatched out about the middle of May, and all hatching being over by the middle of June, except in the case of second broods, which may be seen as late as July 10th or 15th.

The Wild Duck is an excellent mother, never deserting her brood, and when she takes them insect-catching, to which they are much addicted, if it happens that she is suddenly surprised by an intruder, she leaves no *ruse* untried to deceive him, just like the Partridge of old Lafontaine. You should see her then fluttering and limping along as if badly wounded, to mislead the intruder and draw him away from the ducklings. The latter, moreover, warned by a note of alarm from their mother, lie hidden in the grass, and never stir until she returns to let them know that the danger has passed.

Meanwhile, the time of moulting is at hand, for the Mallard that we saw flying about by himself until about the middle of June we have since lost sight of. His fine spring plumage has given place to a more sombre livery, in which all the feathers with metallic reflections have disappeared. The flight-feathers, both primaries and secondaries, have been suddenly shed, leaving the wing quite bare, and its owner absolutely incapable of taking flight. From the 1st to the 15th July, when wildfowl shooting commences in our district (Meurthe et Moselle), there is not a single Mallard to be found in flying order, and sportsmen then give them the characteristic name of *Désailés*. It is this circumstance no doubt which has given rise to the popular impression that at this season of the year the Mallards migrate, leaving the Ducks behind. By this time, also, the young birds have attained some size, and are known as "*Halbrans*." Some are already on the wing and following their parent, others impatiently await the appearance of their flight-feathers, which sprout all at once, to enable them in their turn to try their powers of flight.

These "*Halbrans*" remain in company till the autumn, when they unite in large flocks, as already mentioned. At the opening of the shooting season they are easily shot, and get up sometimes at the feet of the shooter, or under the boat which carries him, like young Partridges in September; but they soon acquire experience, and rarely suffer a near approach, unless suddenly surprised. The old "*Désailés*," although deprived of the use of their wings, take good care of themselves, either threading their way noiselessly through the reeds, or diving across the open reaches of water; they have a wonderful knack of eluding pursuit. If they are driven towards the tail end of a pool, where the cover is thinner, away from the great reed beds, their usual haunt, they know the danger of turning back past the shooters, and resort to another dodge to escape. Diving quietly towards any water-plants on the surface, they come up under a leaf, where, with only the top of the head above water, they remain perfectly motionless, eyeing the sportsman who is in search of them. The latter, who is on his guard against such wiles, scrutinises every bunch of floating cover, detects the skulking Mallard, approaches noiselessly, and grasps him by the neck, unless he prefers to shoot him; but very often, nine times out of ten, the *ruse* succeeds, and the bird escapes. In this way, too, many a winged bird which has dropped in the water has eluded discovery, to the vexation of the shooter.

Towards the end of July the old Mallards have got new quills and recovered the use of their wings, a few only being delayed until about the 10th or 15th August. But by this date all trace of the moult has completely disappeared.

For the last twenty years or more, twenty-five or thirty of these flightless Mallards have annually passed through our hands. We have always carefully examined them, and whenever (from their peculiar dull plumage) there has been any doubt about the sex, which has not often happened, we have ascertained it by dissection. Now in all this number of birds we have never found a single female. Some had the wings completely deprived of the primaries and secondaries, showing without doubt that they had all been moulted at once; others had their digital and metacarpal feathers (the primaries) emerging from their sheaths, whilst the cubital feathers (or secondaries) were only just beginning to show, indicating that the primaries had been shed only a very short time before the secondaries; but this difference was unimportant, since in each case the birds were perfectly incapable of flight. On the other hand, all the females which were obtained at the same season had the wings irregularly furnished with quill-feathers, some of the natural length, others a little shorter, others again entirely wanting, but never to such an extent as to prevent the bird from flying.

From these observations it is clear that in the case of our native wild ducks the quill-feathers are moulted all at once in the Mallards (depriving them for the time being of the use of their wings), whilst in the females the moult is so gradual that the capacity for flight is never impaired. This moult, so differently effected in the two sexes of the same species, takes place not without reason.

The Mallard does not trouble himself about the brood, whilst the female taking the entire charge of them has need of all her resources for the purpose. Hence Nature has been less exacting with her than with her mate.

NOTES ON THE VERTEBRATE ANIMALS OF LEICESTERSHIRE.

By Montagu Browne, F.Z.S.
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(Continued from p. 202).

Order Columbæ.—Family Columbidæ.

Columba palumbus, Linn. Ring Dove (Wood Pigeon).—Resident; generally distributed. In the crop of a Wood Pigeon presented to the Museum by Mr. Bernard Ellis in 1882, sixty-one acorns were found.

Columba œnas, Linn. Stock Dove ("Blue Rock," by error).—Resident; generally distributed. Potter, in his 'History of Charnwood Forest,' says, "Mr. Grundy has shot 'Rock Doves' at Bardon many years back, which he thought came from the Vale of Belvoir. These were probably not *C. livia*, but *C. œnas*, which, as I learn from Mr. Bloxam, is still common in Bradgate Park." It is as numerous in summer as the Ring Dove, breeding in holes in trees. I have seen it nesting at Knighton, whence young birds were procured for the Leicester Museum.

Turtur communis, Selby. Turtle Dove.—A summer visitant, not common, and breeding sparingly. Harley remarks upon its comparative rarity in the county. In May, 1881, I saw a pair in the rectory garden at Aylestone, evidently engaged in nidification.

Ectopistes migratorius (Linn.). Passenger Pigeon.—Widdowson wrote, "One killed in Scalford village street some years ago. The same year I saw accounts of several killed near Liverpool." [Probably imported birds which escaped from some dealer, or from the docks.—Ed.]

Order Gallinæ.—Family Phasianidæ.

Phasianus colchicus, Linn. Pheasant.—Commonly distributed, resident; subject to much variety. Potter, in his 'History of Charnwood Forest,' says, "Hybrids between Pheasant and Fowl occasionally occur in Birchwood near Charley." Lord Ferrers has at Staunton two hybrids between Pheasant and Grey Hen. They were bred in South Wood, and strayed into one of the Staunton woods, where the keeper shot them. Sir Arthur Hazlerigg shot at Noseley, some years since, a pure white variety, which I have, by his permission, examined.

Caccabis rufa (Linn.). Red-legged Partridge.—Sparingly distributed and breeding.

Caccabis petrosa (Gmelin). Barbary Partridge.—In April, 1842, a specimen of this Partridge was picked up dead at Edmondthorpe, near Melton Mowbray: see Yarrell's Hist. Brit. Birds, 4th ed. (vol. iii. p. 121). Widdowson wrote me that he had this very specimen in his possession, and it was from this bird that Yarrell's figure of the species was taken.

Perdix cinerea, Latham. Common Partridge.—Resident; generally distributed and common. The Rev. Churchill Babington, in Potter's 'History of Charnwood Forest,' states on the authority of Mr. C. March Phillipps, that a variety with white horse-shoe markings occurred on Charnwood. Mr. T. Woodcock, of Ratcliffe-on-the-Wreake, wrote me on Sept. 3rd, 1885, that there were three white Partridges, in a covey of nine or ten, on the Garthorpe estate, near Melton Mowbray. I saw a curious light sandy variety, in the possession of Sir Arthur Hazlerigg, shot at Noseley some years ago. The 'Leicester Daily Post' recorded that just after the great storm of the 18th and 19th January, 1881, a bricklayer captured a Partridge in a hole of the damaged roof of a house in Lower Bond Street, Leicester. A still more curious circumstance is recorded by Mr. Davenport, who wrote Dec. 11th, 1885, "I know of a covey of seven cocks and one hen reared this summer under a hen fowl on Mr. G. V. Braithwaite's estate at Stackley, which now come out of the fields to a whistle, and are so tame as to perch on the shoulders and feed out of the hands of the lady of the house." Writing again on Feb. 1st, 1886, he says, "Those Partridges, reduced by one cock, come every morning to be fed, just as they did in September—a marvellous sight."

Coturnix communis, Bonnaterre. Quail.—A rare summer visitant. The Rev. Churchill Babington (see Potter) says, "Several killed one season between Whitwick and Bardon, some years ago, by Mr. Grundy, who kept a wounded bird alive for some time." Harley says, "The Quail's visits are irregular and uncertain, and it appears to be confined to meadow-lands and fields contiguous to streams. On the banks of the Soar and its meadows the Quail breeds in small numbers. Cossington, Barrow, Sileby, Thurcaston, and some other villages having low wet meadows adjoining thereunto, are yearly visited." On the evening of November 15th, 1846, a Quail was captured in the market-place, Leicester. A second example was shot on Mr. Winstanley's estate at Braunstone, on the 20th November, of the same year. Quails have been met with and shot at Tilton, and in the Vale of Belvoir, where Mr. Ingram thinks it occasionally breeds, as he has shot immature birds there with others; near Melton Mowbray, and not far from Leicester. The Earl of Gainsborough, who has most obligingly given me his notes on the fauna of Rutland for incorporation in this list, tells me that he has shot a few Quails at Exton Park, and that this bird has also occurred at Whitwell, Burley-on-the-Hill, Thistleton, and Ayston.

Family Tetraonidæ.

Lagopus scoticus (Latham). Red Grouse.—Formerly occurred, not now found in the county. The Rev. Churchill Babington (see Potter) says, "A brood at Tin Meadows, twenty years ago, some of which were shot by Mr. Grundy, when in search of Black Game. Since then Mr. Gisborne attempted to introduce the bird from Scotland and the Derbyshire Moors, but without success, it being unable to bear the dust of the journey, as the gamekeeper thought." The Rev. J. C. Davenport shot one at Skeffington in the winter of 1860, while feeding on some hips on a hedge. I saw a mounted specimen at Noseley, which had been shot there some years ago, whilst sitting on a whitethorn eating the haws, by Sir Arthur Hazlerigg; it had been previously observed sitting on the top of a large ash tree!

Tetrao tetrix, Linn. Black Grouse.—No longer met with in the county. The Rev. Churchill Babington, writing in Potter's 'Charnwood Forest,' refers to it as formerly occurring in Charnwood Heath, Sharpley, &c., in tolerable numbers, but then nearly extinct. Harley also met with it in Charnwood Forest, where it used to breed annually, though in diminished numbers, since the ancient forest existed only in small patches of a few hundred acres in extent, consequently the range of the Black Grouse was considerably narrowed. On the flanks of the wild hills outlying the lordship of Whitwick there remained a few birds still protected. He appears to have last seen it in the spring of 1850. The late Mr. Alfred Ellis, in his 'Notes about Birds,' published for private circulation in 1868, wrote that "some years since" he had shot several, with Mr. Gisborne, near to the Monastery on the Forest. Mr. J. B. Ellis writes, "Now extinct; used to live in large woods by Benscliff." Sir G. Beaumont wrote to Mr. Macaulay that he remembered killing Black Game on Charnwood Forest about 1847 or 1848, and during the next ten years he shot several "Grey Hens" in South Wood, near Coleorton. Lord Gainsborough writes that Mr. G. H. Finch, of Burley-on-the-Hill, recollects a "Grey Hen" being shot in Burley Wood in November, 1856.

Order Fulicariæ.—Family Rallidæ.

Rallus aquaticus, Linn. Water Rail.—Generally distributed, and probably breeding. The Rev. Churchill Babington (see

Potter) says it occurs at Thringstone, Rothley Temple, &c. I have seen several local specimens. Mr. Macaulay, I believe, has shot it at Saddington, and Mr. Samuel Bevans shot a specimen in the Abbey Meadow some years ago, which I saw.

Porzana maruetta (Leach). Spotted Crake.—Sparingly distributed, probably breeding. According to Harley, it was very common during the summer of 1842. In many localities throughout the Midlands it appeared in numbers, but nowhere in Leicestershire was it met with in greater abundance than in the meadows and fields near the Soar. From Loughborough to Kegworth it was plentiful. Prior to the taking over of the Museum by the Corporation in 1849, there appears to have been a specimen from "meadows on banks of River Soar." Mr. Macaulay (Mid. Nat. 1882, p. 78) "has killed three in his neighbourhood during the last twenty years," and he wrote me that he had shot another at Saddington Reservoir, on the 15th January, 1884. I saw two mounted specimens which had been shot, at the Abbey Meadow some seven or eight years ago, by Mr. Samuel Bevans. One purchased from Mr. R. Widdowson for the Museum was obtained at Melton Mowbray, on the 1st October, 1881, and he also wrote me that it bred in that locality. I saw one, in the possession of Turner, shot in the Abbey Meadow, three years ago, and another, in the possession of Elkington, caught by a dog at Birstall, on the 17th of October, 1885.

Porzana parva (Scopoli). Little Crake.—Harley states that one was shot near the town of Leicester in January, 1841, and was afterwards eaten.

Crex pratensis, Bechstein. Corn Crake (Landrail).—A summer migrant; generally distributed, and breeding.

Gallinula chloropus (Linn.). Moorhen (Waterhen).—Resident, and generally distributed. Breeding quite close to Leicester, and at Aylestone. Often flying at night with loud cries. The MS. donation book Leicester Town Museum records, under date 23rd Feb. 1853, one presented by Mr. Dalby, shot at Ilston-on-the-Hill as being "remarkable for being destitute of the slightest vestige of the hinder toes."

Fulica atra, Linn. Coot ("Bald Coot").—Resident, and locally distributed. Breeds at Bosworth, Groby Pool, Saddington Reservoir, "Frog-hollow" Pond, Belvoir. One was shot close to Leicester, at Belgrave by Mr. Grewcock during a snow-storm on January 23rd, 1886.

Order ALECTORIDES.—Family GRUIDÆ.

Grus communis, Bechstein. Crane.—In 1822, according to Harley, a Crane was shot by Mr. Chaplin, of Groby, on the banks of Groby Pool. This is the only instance in which it is known to have occurred in this county.

(To be continued.)

NOTES AND QUERIES.

The Sale of Game out of Season.—Many persons seem to be under the impression that no penalty is incurred by selling game out of season, provided it can be proved to have been obtained *from abroad.* This is altogether a mistake; such a proviso extends only to wildfowl, and no such clause is to be found in the principal Game Act of 1 and 2 Will. IV. c. 32. Section 4 of that Act is explicit enough. It enacts that "anyone who shall expose or offer for sale *any* game bird after the lapse of ten days from the expiration of the shooting season (that is after the 11th February) shall be liable, on conviction, to a penalty not exceeding £1 for every bird so exposed or offered for sale," no exception being made in favour of foreign game. "*Any game bird,*" of course, means any bird which is included in the definition of game laid down in the Act referred to, irrespective of locality, and all our native game birds being protected by that statute it was of course unnecessary to include them (and they accordingly are not included) in the provisions either of the Wild Fowl Preservation Act or the Wild Birds Protection Act. The sooner this is understood by London and provincial game-dealers the better for the interests of game-preservers and sportsmen generally throughout the kingdom.

Death of Thomas Edward, the Banffshire Naturalist.—Our readers will be sorry to hear of the death of this worthy naturalist, who has just passed away at the advanced age of seventy-two. A shoemaker by trade at Banff, and a poor man, he had not the means to inform himself as others with similar tastes have done. He always lamented his want of books, and in the course of his collecting had frequently to send his specimens to correspondents at a distance to be named, and in this way often lost them. Being resident at Banff, his rambles extended coastwise along the shore of the Moray Firth for about seven miles in one direction and six in another. These excursions also extended inland for about five or six miles. The use which he made of his time may be judged from the result of these excursions. His accumulation of natural objects became something extraordinary. In eight years he had preserved nearly 2000 specimens of living creatures collected in the neighbourhood of Banff—quadrupeds, birds, reptiles, fishes, crustacea, corals, sponges, and other objects, to say nothing of a large collection of carefully dried plants, the whole of which he learnt to mount and preserve himself. It is lamentable to think that these collections were subsequently lost when, quitting Banff for Aberdeen in the hope of bettering his position, Edward opened a museum, which did not pay its expenses, and the collections had to be sold at a great sacrifice, the greater portion subsequently perishing for want of proper care. But although the collection had gone, the knowledge gained in forming it had been well stored, and through the kindness of his friend the Rev. Mr. Smith, of Monquhitter, Edward was enabled to impart much useful information to other naturalists. In Bate and Westwood's 'History of British Sessile-eyed Crustacea,' his services are frequently acknowledged. Of the Crustacea mentioned in that work Edward collected no less than 127 species in the Moray Firth, of which twenty were new to Science. Many of his beetles and other insects were forwarded for identification to Edward Newman, who named them for him, and assisted him liberally with books that were likely to be useful to him. The late Mr. Couch, in the preparation of his work on 'British Fishes,' found Edward a most useful correspondent, for through his agency several species of fish were procured on the Banffshire coast which were not previously known to occur there. Just ten years ago Mr. Smiles published his life of this Scotch Naturalist, a work which was reviewed at the time in these pages (Zool. 1877, pp. 71—76), and which doubtless everyone with a taste for Natural History has read. It was gratifying to learn that the publication of his biography placed Edward in receipt of a royal pension of £50 per annum, and led to a public recognition of his genius by the presentation to him at Aberdeen of a purse containing £333. But he himself must surely have felt how much more useful would this have been had it come to him in the prime of life instead of in his old age.

A Median Eye in Vertebrates.—A most interesting discovery has been made of a kind totally unexpected, and of fundamental importance. Dr. von Graaf, having reported the presence of an eye-like organ in the Slowworm (*Anguis fragilis*), Mr. W. Baldwin Spencer, M.A. (Assistant to Professor Moseley at Oxford, and lately elected to a fellowship at Lincoln College, Oxford), has examined a similar structure in *Hatteria*, and some other Lizards. He has discovered the nerve by means of which the median interparietal eye is connected with the brain, and finds that it is a portion of the *epiphysis cerebri* (pineal gland). The eye does not reach the surface, is surrounded with connective-tissue, has a distinct lens, and is on the "invertebrate type,"—that is to say, the rods are turned towards, and not away from, the light, as they are in the lateral eyes of vertebrates.

MAMMALIA.

Martens in Herefordshire.—I promised to let you know the history of the Herefordshire Marten-cat which was presented to the British Museum last year, and at the same time to try and furnish some information about other specimens of this now rare animal procured in this county. The specimen in the British Museum (dark brown with maize-coloured throat) was caught in a vermin-trap in a covert called "Paradise-brake," close to the house, in March, 1878. The keeper (Edwin Rogers) who caught it called it a Pine Weasel, and reported that he came upon the foot-prints of another soon afterwards; but has not seen or heard of one from that time to the present. Mr. H. Wood, of White House, Vowchurch, Hereford, has a stuffed specimen of the Marten, which he informs me was caught by his keeper, Thomas Howard, in Lowerhouse Wood, in the parish of St. Margaret's, about twenty-five years ago. Its colour is a light brown, with a white throat, but it is said to have been darker when killed, and to have since faded, either from exposure to the light or from the action of the chemicals used for preserving the skin. Mr. Wood remembers to have seen another Marten, which was killed in the orchard above his house perhaps thirty-five years ago. This specimen was much darker in colour than the one now in his possession. It was preserved at the time, but was subsequently given away, and he is now uncertain whether the specimen is still in existence or not. He adds that "many years ago" a yellow-throated Marten was killed near Urishay Castle, about three miles from where he resides, and was described at the time in the Hereford papers as a "Pine Marten." Mr. Greathead, of Whitfield, near St. Devereux, about four miles from here, informs me that about the year 1860 three Martens were killed in this neighbourhood, and that none have been seen since. The old keeper who killed them described them as very like young fox-cubs, and, in regard to size, intermediate between a fox and a "fitchew," or Polecat. The Rev. G. M. Watkins informs me that Whitlock, the keeper at Kentchurch Court, says he has not seen a "Marten-cat" for twenty years; not since 1866, when one was trapped at Kentchurch, just by the little brook that runs into the River Monnow. His father, forty years ago, used to kill four or five every year near Monmouth, in a large wood called "Whitehill." The last I have heard of was seen just two years ago. In the spring of 1884, Mr. Walter Steward, R.N., was wading in the River Dore, when he saw a Marten (exactly like the one we sent to the Museum, dark brown with yellow throat) crossing the stream by means of a tree which had fallen across, and carrying a rat in its mouth. Mr. Steward, being in the water not far from the tree, had a very distinct view of the animal. We never heard of its being caught or killed. This is all the information I have been able to obtain about Martens in Herefordshire.—F. ATTWOOD-MATHEWS (Pontrilas Court, Hereford).

The past Winter and the Rabbits.—The protracted severity of the late winter has sadly punished the Rabbits in this district. Young ones were seen early in January, as is usually the case, but none appear to have survived. The second litter met with what I consider an unusual fate, for during March scores of newly-born young were found on the snow, in most cases dropped singly; in others four or five were laid together, but in no instance had the doe attempted to make a nest. Thus the first two litters perished, and at the present time—middle of May—instead of there being a good stock of half-grown young, only a very few, about a month old, can be seen. The old bucks appear to have fared better than the does, at any rate, the number of the former is about double that of the latter, as we have found when catching a few to turn down in some of the cloughs on the borders of the moors, where the snow was so deep, and lay for such a length of time, that almost every Rabbit died in the burrows.—ROBERT J. HOWARD (Blackburn).

Destruction of young Rabbits by Rats.—Some of your readers have, I dare say, in the course of their summer walks, occasionally come across young Rabbits, dead or only wounded, with their hind-quarters paralysed from the effect of a deep incised wound at each side of their loins just before the hip-joints. Having frequently found young Rabbits in that state I for a long time felt greatly puzzled as to what animal attacked and wounded them: and what puzzled me more was the fact that, often hearing young Rabbits screaming under bushes and briers, yet when I hurried up to the bush the screaming always ceased—no enemy was in view, though the disabled Rabbit remained in a helpless state. This state of things continued for some time, until one day I heard a young Rabbit screaming under some briers, and on approaching cautiously without noise I saw a great Rat at the mouth of a hole, having hold of a young Rabbit across the loins, trying to drag it back into the hole; but on seeing me the Rat retreated into the hole, leaving the unfortunate Rabbit in such a helpless state that I was obliged to kill it to put an end to its sufferings. This solved the puzzle as to what animal was attacking the Rabbits, and since then I have frequently rescued young Rabbits from the Rats, and have been much surprised at the size of the Rabbits attacked, and at the great strength shown by the Rats in holding their victims. About two years ago when in one of my fields sowing turnips, my attention was attracted by the loud screaming of a Rabbit in a ditch close by, and on running up and looking into it I saw an old mangy-looking Rat having fast hold of a half-grown Rabbit across the loins, and struggle as he did most violently, he could not gain an inch on the Rat, which held on like a bulldog, with his feet firmly placed against a bunch of grass steadily holding on, while the Rabbit was exhausting its strength by its violent efforts to escape.—Robert Warren (Moyview, Ballina).

Climbing Powers of the Hedgehog.—I am advised by some of my friends to send you a notice of the mode in which Hedgehogs may frequently escape from confinement, and of their habits. I obtained a Hedgehog, and put it in my kitchen. Every day it is placed in a small back area, about twelve feet square, during the day-time. The waste-pipes from the cisterns discharge into this area, and the animal frequently lies under these, and, as my servant says, "wallows in the trough like a pig." If he hears any noise he at once runs to a corner and rolls himself up. On April 14th the servant found him on the top of the partition wall between my area and the next. This wall is vertical, height nine feet six inches. The top course but one projects one inch, so he must have climbed over this. He has been watched in the operation. He climbs by the projecting mortar beds, which are rather rough, looking about him frequently to see if he is watched. He climbs up the house wall beside the pipe in the corner—an ordinary iron rain-pipe; but from the shoulder of the pipe, where it passes through the wall, to the top of the partition wall, there is a distance of nine inches without any pipe, so up this portion and over the projecting brick course he must have climbed by clinging to the wall of the house or the partition wall. On April 15th he repeated the ascent, and descended into the next area, where he was found the following morning.—Robert H. Scott (6, Elm Park Gardens).—*From 'Nature.'*

Bat brought down by a Cockchafer.—On the evening of May 6th, between eight and nine o'clock, as my daughter was walking from the College towards the Lodge, along a shaded path, there being full-grown larch trees on either side, she was startled by something falling heavily on the ground immediately in front of her, and on stooping down to find out what it was, was surprised to see a small Bat on its back and underneath its wing a Cockchafer, which had evidently been the cause of its downfall. On the Cockchafer being removed the Bat very shortly turned over and flew off. I suppose the Bat and Cockchafer must have met accidentally in the air, the former clinging to the Bat, and thus causing the wing to drop. Perhaps the circumstance may be sufficiently unusual to be chronicled.—J. H. Wilmore (Queenwood College, near Stockbridge, Hants).

BIRDS.

Golden Oriole in the Channel Islands.—In his account of the 'Birds of Guernsey,' 1879 (pp. 25—30), Mr. Cecil Smith has remarked upon the scarcity of this bird in the Channel Islands, which is the more singular on account of its being an annual spring visitor to England. He says:—"I have never seen the Golden Oriole alive or found any record of its occurrence in Guernsey or the neighbouring islands, and beyond the fact that there was one example—a female—in the Museum, which may have been from Jersey, I have been able to gain no information on the subject, except of a negative sort. The Golden Oriole is mentioned in Prof. Ansted's 'List,' as having occurred in Guernsey and Sark, but no further information is given." Mr. C. Smith thinks it probable that Guernsey was mentioned on account of the specimen in the Museum, but, he adds, "with this exception I have never heard of its making its appearance in Sark even as a straggler." Mr. Kenneth Lawson has been good enough to send us an extract from the 'Gazette Officielle de Guernsey,' dated 1st May, 1886, where it is stated that during the last week of April a Golden Oriole was caught in Sark, and after being kept alive for a few days, died and was forwarded to Mr. Jago for preservation. The Channel Islands apparently do not lie directly in this bird's line of migration when coming up from the south in spring, and yet in Cornwall and the Scilly Islands it is regarded as an annual summer visitant, generally appearing about the end of April, or first week in May (see Rodd's 'Birds of Cornwall,' pp. 28, 29). Since the receipt of Mr. Lawson's communication, a note has appeared in 'The Field' of May 15th from Mr. Caplin, of Jersey, stating that he had lately preserved an adult male Golden Oriole, which had been shot near Samaré's Manor, Jersey, on the 29th April last.—J. E. Harting.

The Nightingale near London.—Many observers testify to the presence of the Nightingale in several localities around London, and it has been heard even in the metropolis itself—namely, in the Flower Walk, by the Albert Hall in Kensington Gardens, and in the Zoological and Botanical Gardens, Regent's Park. In May and June it may be heard commonly in the woods about Hampstead, Highgate, and Muswell Hill, as well as in the copses around Enfield, Hendon, Mill Hill, Edgware, Stanmore, and Harrow Weald. At Pinner also, and Ruislip it arrives regularly in April, and we have frequently heard it at Kingsbury and Wembley. To the south of the Metropolis it may be found in Kew Gardens, and in the neighbourhood of Wimbledon Common; while the further afield we go into Kent and Surrey the greater are the chances of meeting with it.—J E. Harting.

Notes on the Cuckoo.—As information is still required concerning some of the habits of the Cuckoo, perhaps the following particulars may be of interest:—In the year 1874 I used often to explore the reed-beds on the side of the River Avon in Warwickshire, where Reed Warblers bred in considerable numbers. The patches of reeds were only of limited extent, and it was not difficult to find the Warblers' nests. One day I found a Cuckoo's egg in one of the nests, and the next day I found another.

These two eggs were precisely alike, both in size, outline, and colour. I took them both. When passing the place about a week afterwards I again looked into the reed-beds, and found a third Cuckoo's egg, an exact facsimile of the two previously obtained. I took this egg, and in another nest of the Reed Warbler, containing only one of its own eggs, I substituted an egg of the Sedge Warbler, taking that of the Reed Warbler away with me. The next morning I went to see if the bird had forsaken, and was astonished to find a fourth egg of the Cuckoo placed alongside the single Sedge Warbler's egg in the Reed Warbler's nest. This egg also exactly resembled the three already obtained, and it should be mentioned that all these four eggs of the Cuckoo were deposited within a space of about 200 yards. Without rushing to any conclusions, I think we have here pretty strong, though purely circumstantial, evidence that the Cuckoo lays more than one egg during the season, and it would also appear, unless evidence to the contrary is forthcoming, that the eggs forming the Cuckoo's clutch resemble each other, as is generally the case in most clutches of other birds' eggs. It is well known that the Reed Warblers lay two distinct types of egg, a dark variety and a light variety; the former, by far the most common, being thickly blotched with a dull green on a white ground; the latter, which I think is rare, having very pale purple blotches on the white ground. I have only seen two nests of the Reed Warbler containing the latter type of egg, and, strange to say, two out of the four Cuckoos' eggs obtained were deposited alongside these pale varieties. From this it might appear that the Cuckoo selected these nests purposely, in order to assimilate as much as possible her egg with those already in the nest. I may mention that the four Cuckoos' eggs were all very light-coloured, not unlike those of the Pied Wagtail, but essentially differing from the first-mentioned dark variety of the Reed Warbler. With regard to the time when the young Cuckoo moults, on August 6th last year I got a young bird in the usual dull red and barred plumage; it had flown against the light at Souter Point (electric) Lighthouse at 2 a.m. that day, and had killed itself. What was it doing there at that time of day, if not migrating? The man at the lighthouse thought it was a Sparrowhawk.—Alfred Crawhall Chapman (Sunderland).

The Note of the Female Cuckoo.— Some observers have expressed their belief that the female Cuckoo, like the male, utters the well-known call—a minor third sung downwards. In some excellent observations on the habits of this bird, published in the 'Magazine of Natural History' (vol. viii. pp. 325–340), the late Mr. Blyth remarked.—"The common and more generally known note, *Cuckoo*, is alike repeated either when perched or on the wing, and, I am fully confident in my own mind, *by both sexes;* but I will not speak quite positively on this point till I have myself examined a female which had been heard to sing. It is the decided opinion, however, of several observant persons of my acquaintance, for the accuracy of whose observations I have the highest regard, that *this note is common to both sexes;* and one even tells me that, as with gun in hand he was once talking to a friend, a Cuckoo alighted upon a tree close by, and several times repeated its call: he was desired to shoot it, and did so; and a day or two afterwards his friend told him it was a pity he had shot it, for it had an egg almost ready to lay." Blyth adds, "I give this upon unquestionable authority." This seems positive evidence enough, and yet Prof. Newton, in the second volume of the 4th edition of Yarrell's 'British Birds,' referring to this very statement by Blyth, says (p. 390, note) that "it does not rest on his own observation, and he with others may be safely deemed to have been misled in the matter" (!). Prof. Newton himself says (on the same page) that female Cuckoos "have no loud and musical note to attract attention—one that they utter has been compared to the cry of the Dabchick, another (or perhaps the same) sounds to the writer not unlike the call-note of the Whimbrel." [The call of the Dabchick and that of the Whimbrel are totally unlike; the first being a short sharp monosyllabic cry, and the other a rapid iteration of one note, which may be described as a melodious whistle.—Ed.] My own observation leads me to believe that both sexes of the Cuckoo utter a variety of notes. On May 5th I saw a Cuckoo calling in a tree; in a few seconds it was joined by another, evidently a female from the attentions paid it by the first comer. The first one uttered a kind of cooing note, while the second uttered a note something like the bark of a dog. As they were approached they flew off, the female uttering a note something like that of the Fieldfare, and both called while flying. Before they settled again they were pounced upon by a Rook, which stooped at them like a hawk. — Francis Head (Lancing College, Shoreham).

Young Cuckoo ejecting the Young of its Foster-parent from the Nest.—I can confirm the fact of the young Cuckoo ejecting the young of the species in whose nest it is fostered, alluded to by Mr. John Hancock (p. 203), a case having once come under my own observation, the particulars of which are as follow;—Having found a young Cuckoo in the nest of a Hedge Accentor, from which the rightful owners had not long been ejected (for they were alive and warm), I determined to replace them, or at least one or two, but the usurper left very little room, appearing to very nearly fill the nest. However, I tried the experiment of returning one young Accentor to the side of the young Cuckoo; whereupon the latter began to make a fluttering or wriggling movement until it got under it, and finally forced it over the side of the nest. I repeated the experiment several times, not only with a young bird, but also placed pieces of dried earth, sticks, or any extraneous substance at hand, always with the same result. Upon attempting to remove the young intruder, it hung on to the lining at the bottom of the nest with its claws, like a hawk, with such pertinacity that I allowed it to remain.—R. P. Harper (Scarborough).

Cuckoo feeding its Young.—The following observations are condensed from a MS. note by the late Mr. Harley, of Leicester:—It is remarkable that, although the Cuckoo takes no part in nidification nor incubation, its eggs being entrusted to the care of other birds, yet, when its offspring is on the wing, I have noticed its anxiety to provide for it. Ornithologists appear to have overlooked this fact. In September, 1854, I was on a visit to a friend, when my attention was directed towards a Cuckoo which lingered about the outlet and orchard surrounding the house. Walking beside a tall hedge which bounded the outlet and fenced in a number of hayricks, I was one day startled by the Cuckoo, as it glided by me, and alighted on a cross-rail hard by. Remaining perfectly still, I saw a young one, just fledged, approach the spot where the old bird was, and shortly afterwards I saw the latter engaged feeding it. In the course of the day, in company with a friend, I observed the parent Cuckoo performing a similar task, after which she fled away at our approach, and was lost in an adjoining thicket.—(Communicated by Mr. M. Browne, Leicester).

Ornithological Notes from Germany.—The weather in this part of Germany, after a very severe winter, began to break up on March 20th; and about this date, and even before, many summer migrants began to arrive. Sky Larks (*Feldlerchen*) appeared on March 5th, and White and Pied Wagtails (*Bachstelzen*) on the 19th, but the pied species only remained a few days; and now (March 31st) the White Wagtails have already begun to build; every night a flock of forty or fifty of these birds roost in some bushes overhanging the water, and they sit very close together, probably for warmth. On March 16th a large flock of Carrion Crows (*Raben*), Jackdaws (*Dohlen*), and Rooks (which have been very scarce all the winter) were observed migrating north-eastwards, at a considerable elevation. On the 22nd March a flock of Peewits (*Kiebitze*) settled in some meadows here to rest, but afterwards continued their flight in a northerly direction,—the wind was south,—and the next day I saw another flock flying north-east, the wind being east. The most interesting fact, however, in connection with the spring migration has been the extraordinary migration of Cranes (*Kraniche*), of which great numbers have passed over; the first flight that I observed, consisting of from eighty to one hundred birds, flew over on March 23rd, and rested for a short time in a stubble-field near until they were disturbed by a gun being discharged at them, when they flew off in a long line towards the north-east. Shortly after this flock had gone no less than nine more flocks flew over, towards the north, each consisting of from forty to one hundred or more birds, the wind being east and the weather very fine. The Robin (*Rothkehlchen*) and Song Thrush (*Drossel*), as well as the

Greenfinch (*Grünfink*) are only summer visitors to this part of Germany; the two former arrived on March 24th, and the latter on March 28th. On the 24th, also, a Water Ouzel (*Wasseramsel*) was seen close to the mill. On the 25th March Chiffchaffs had arrived, and were heard singing lustily. On this same date I saw more large flocks of Cranes, some flying towards the north, and others towards the north-east. In every case they made their presence known by their musical cry. Most of these flocks were flying at a considerable elevation, and in the form of regular triangles; the wind was south, and the weather very fine and clear. On March 28th several more parties flew over in a northerly and north-easterly direction; but a small party of three that I saw later in the day were flying south-east! The wind was then south. On this day I saw the first Goldcrest, and a Redstart on March 29th. I think the Kite (*Gabelweihe*), as well as the Sparrowhawk, are here only summer visitors, for I have seen neither during the winter, but a pair of each on March 28th. Common Buzzards (*Bussard*) have, however, been very plentiful all the winter; they have now retired to the woods for the purpose of nidification, and some may often be seen, when the weather is fine, soaring above the trees of the forest.—PHILIP W. MUNNS (Papier Fabrik, near Cassel, Germany).

Habits of the Coot.—Of the many birds once so common in our fens, the Coot is one that is fast disappearing. Sixty years ago the fowler seldom cared to kill them when other and more valuable fowl were plentiful. The Coot of to-day, however, has a rough time of it. Fearless to show himself, and easily flushed from the narrow fringe of flags or willows that border our rivers and dykes, he affords an easy shot to the poorest of marksmen. Of late years several pairs of Coots have bred in some reed-beds near Ely, arriving early in February, if the water be clear of ice. These representatives of the ancient denizens of the fens immediately establish the most stringent kind of home-rule, and, claiming their own again, as it were, my tame ducks soon become aware that they are intruders, the moorhens are made very unhappy,—in fact, all birds give them as wide a berth as possible. They are amusing enough, though I wish they would be off; still I have not the heart to evict them. Last year they killed forty-five young ducklings, which had been led into the Coot territory by their parents. The ducklings dived to get out of the way, but at this they were no match for their pursuers. Others taking to the land were in worse plight, for they were at once caught and killed by blows on the back. The agonising cries of a duck whose brood was attacked brought the drake to her assistance; the Coot desisted from his murderous intentions, but, with feathers all on end and outstretched neck (making himself look as big and terrible as might be), went to meet him. Nothing daunted, on came the drake; then ensued a duel strange and fierce. The Coot, equally handy with claws and beak, fought desperately; his antagonist was sore pressed, but at last seized the

Coot by the neck and held him so long under water that nothing, I think, but a Coot could have survived it. When at length he was liberated, he hastily dived, and was seen no more. It is a fact that, after this, no Coot would interfere with this drake. Whether the others saw the result, or had the fight related to them in bird-language, I am unable to say. This champion drake, however, is now no more, and several pairs of Coots may be seen all day long, diving and bringing up weeds from the bottom, in search of food. My ducks dare not pass them: woe to their young broods, should they have any. I should be glad to know if other observers have remarked this savage propensity of the Coot. All creatures will endeavour to protect their young, but Coots are most aggressive: even among themselves they do not agree. Each pair has a well-defined region of reeds and water, the invasion of which at once leads to a disturbance.—JOHN TITTERTON (Ely).

Redshank breeding in Kent.—During a ramble in Kent on April 23rd, I came upon a breeding-place of the Redshank. There were at least four or five pairs of birds there, which from their actions were evidently nesting, but, after a very careful search, I could not discover any nests. I again visited the place on May 3rd, when I was fortunate enough to find all the nests, containing in every case a full clutch of eggs (four). The nests were built in a marshy place, and were a considerable distance from each other; they were made of a little dry grass, and in every case situated in the centre of a tuft of grass. I have visited the place since, and noticed that the birds always caught sight of me before I was within two hundred yards of them; they flew up and past me, keeping up a loud whistle all the time, and then flew off to a distant part, where I could hear them whistling, until I departed. The name of the place I have not given for obvious reasons.—R. FORTUNE (Harrogate).

Snipe and Redshank laying in the same Nest.—On the 15th April I found near my house a nest containing four eggs of the Common Snipe and four of the Redshank. As I never heard of a similar case, I should feel obliged if you would notice it in 'The Zoologist.'—JAMES SARGENT (Nith Cottage, New Cumnock, Ayrshire).

[Two species of similar habits and living in the same haunts occasionally lay in the same nest. We have known a Pheasant and Partridge to behave thus, and a Grey Partridge and a Redleg to do the same.—ED.]

Effects of Sudden Cold upon Summer Birds.—One hears on all sides of the great destruction wrought among our lately-arrived migrants by the severe weather of the second week in May. The following particulars may be of interest, and may tend to show the terrible mortality that has occurred in this district. As many as 150 Swallows and Martins were picked up at a country house near Preston; nearly 100, almost all Swallows, were found at St. Michael's-on-Wyre; and 64 at a mill near here. Mr. A. Edmonds, naturalist, Preston, informs me that 392 Swallows, 65 House Martins, 8 Swifts, 2 Sand Martins, and 10 Landrails, nearly 500 birds in all, were brought to him for preservation between Tuesday, May 11th, and the following Tuesday. All these had been picked up dead. Some idea may be formed of the thousands that must have succumbed to the cold and absence of insect-food during those days, in this district alone, when one considers the comparatively small proportion of these poor victims to our treacherous climate that would be found, and the still smaller proportion of those found which would be taken to one individual birdstuffer to be preserved. A keen observer of birds in this neighbourhood told me that he really thought nine Swallows out of every ten had perished.—W. Fitzherbert-Brockholes (Claughton-on-Brock, Garstang, Lancashire).

Screaming of the Cock Pheasant.—Mr. Cambridge Phillips, in last month's 'Zoologist' (p. 213), refers to the screaming of a cock Pheasant when caught by a dog. I have noticed the same thing several times when the bird, being winged, has got under thorns, fern, or other cover, and been pulled out by a dog or by hand. The sound is very like the noise made by the domestic fowl when caught, but much more shrill. I have heard the hen Pheasant make something of the same sound, but not so loud.—J. Whitaker (Rainworth Lodge, Notts,.

Unrecorded Occurrence of the Blue-throat in East Lothian.—Through the kindness of Mr. James M'Leod, of Belhaven, Dunbar, I am able to record the occurrence of an example of this bird, which that gentleman shot in his garden at Belhaven at the end of May or beginning of June, 1868. He had it preserved, and it has been in his possession ever since that time. The upper plumage is greyish brown; the chin and upper part of breast is azure-blue, centre spot yellowish brown, with pure white below, under the azure-blue is a narrow band of black, which is followed by a broader band of rust-brown; plumage of the under parts dirty white. Mr. M'Leod informed me that the Common Redstart, *Ruticilla phœnicurus*, was more numerous than usual in this vicinity when he shot this specimen. The Blue-throat is not mentioned in Gray's 'Birds of the West of Scotland,' nor in Turnbull's 'Birds of East Lothian,' but in the 4th edition of Yarrell's 'British Birds' (vol. i. p. 352) it is stated that "Mr. Gray informed the editor that a cock was caught on board of a fishing-boat off Aberdeen, May 16th, 1872."—George Pow (90, High Street, Dunbar, N.B.).

Swallows dying of Cold in May.—During the past week we have had a sharp reminder that "Winter, lingering, chills the lap of May," for on May 12th and 13th a strong N.E. gale was blowing, accompanied on the first-named day with a drenching rain. In the western part of the county there was a heavy downfall of snow, the hills in Weardale being covered to a depth of several inches. As a consequence of this severe weather the summer migrants, and especially the Swallow tribe, have suffered greatly. At Flatts Farm, near Bishop Auckland, twelve Swallows and two Sand Martins were picked up dead on May 14th; several others were found in a half-starved state, and were taken into the house, but died in the course of the day. All these birds were in plump condition, so that it is evident they had succumbed to the severe cold. In the streets of Durham many Swallows were found dead on May 14th, and in other parts of the north-country, and particularly in the Lake District, hundreds of Swallows have been found lying dead in the fields and on the roads.—T. H. NELSON (Bishop Auckland).

Black Game in Herefordshire.—It may perhaps be worth mentioning that Black Game have lately settled down in Crasswall (on the Brecknockshire side of this county), where for the last year or two they have been met with in small numbers. They probably came from Radnor Forest, which would be about fifteen miles off.—H. H. WOOD (White House, Vowchurch, Hereford).

[Is it not more likely that they came over the Brecknockshire border? In this county, according to Mr. Cambridge Phillips ('Zoologist,' 1882, p. 138), Black Grouse are to be found on the Marquis of Camden's property near Trecastle; Mr. D. Llewellyn also has a few; and on Lord Tredegar's, Sir Joseph Bailey's, and Mr. William Vaughan's hills there is a fair stock of breeding birds.—ED.]

REPTILES.

Palmated Newt in Epping Forest.—I have the pleasure of recording a new locality for this Newt in the immediate vicinity of the Metropolis—a small pit near Chingford Station. It is quite abundant there, and occurs in company with *Molge cristata* and *M. vulgaris.*—G. A. BOULENGER (British Museum, Nat. Hist.).

Palmated Newt in Lancashire.—As I am working this summer on the life-history of our British Newts, I have asked several friends in various districts to procure specimens for me. Mr. A. Jackson, of Garstang, near Preston, brought to me, on April 19th, some Common Newts (as he supposed), captured on the 17th; but on examining them I found that they were the Palmated Newt (*Molge palmata*), which, so far as I know, has not been found before in Lancashire. I have put them in a tank, and they have already laid several eggs, whose development I am carefully observing. The tail filaments and the palmated feet of the males are not yet fully developed, owing perhaps to the lateness of the season. — LINNÆUS GREENING (Beechwood, Warrington).

FISHES.

Acclimatisation of American Lake Trout in England.—About nine years ago Mr. Basset, of Tehidy, near Camborne, stocked one of his ponds there with American Lake Trout, *Salmo fontinalis*. I heard nothing of them until about a week ago, when I was informed that a Trout had been taken in the pond referred to weighing nine pounds four ounces, and had been sent to Mr. Vingoe, of Penzance, to be preserved. I have since seen it at Mr. Vingoe's, and identified it as the Lake Trout. It measures two feet one inch over all, and seven inches at its greatest depth. Mr. Vingoe reports the flesh as pink in colour, and excellent eating. — THOMAS CORNISH (Penzance).

CRUSTACEA.

The Long-legged Spider Crab at Penzance.— On May 15th, in comparatively shallow water (about four fathoms), I took a small specimen of the Long-legged Spider Crab (*Stenorhynchus phalangium*). Bell refers to it as common, but as regards Cornwall this is only the second that I have ever seen. The first I captured on this coast on August 7th, 1877.— THOMAS CORNISH (Penzance).

ARCHÆOLOGY.

Wild Animals paid for by Churchwardens in Bucks.—In a thin 8vo volume of 76 pages, just published by the Rev. Pownoll W. Phipps, M.A., Rector and Vicar of the parish, entitled, 'Records of the Churches, Rectory, and Vicarage of Upton-cum-Chalvey, Bucks (C. Luff, Slough, 1886), some extracts are given from the Churchwardens' Accounts. From these we take the following items, as likely to interest our readers :—

		£	s.	d.
1749.	Paid for keeching of Sparrows	0	3	0
1752.	Doz. Sparrows	0	7	9
	Paid for three Hegg hoggs	0	1	0
	To John Harper for destroying 18 doz. of Sparrows at 3d. per doz.	0	4	6
	To Francis Winter for 7 doz.	0	1	9
	To Charles Grimsden for 3 Hedgehogs ...	0	1	0
	For Hedge hog	0	0	4
1755.	10 dozen of Sparrows...	0	2	6
	6 Hedge hogs	0	2	0
	2 Hedg hogs	0	0	8
	For Polt cats	0	1	0
	For catching 2 doz. and 6 Sparrows	0	0	7½
	For destroying 1 doz. and a half of Sparrows	0	0	4½
1757, Nov. 25.	Pd Mr. Jaggers for killing a pole cat	0	0	4
1777 ,,	Paid Tredaway for Sparrows' heads	0	0	9½
1812, May 22.	For Sparrows to this day	0	10	0
1825 ,,	67 dozen Sparrows	0	16	9

These are fair specimens of the nature of the entries, the sums paid for the destruction of Sparrows, Hedgehogs, and Polecats being interspersed throughout the other entries continuously. Thus in 1759–60, 1680 Sparrows were destroyed at a cost of 3d. a dozen; 2 Hedgehogs at 4d. each; and 2 Polecats at 4d. each. Archdeacon Heslop prosecuted some farmers for destroying the ivy on old Upton Church, which harboured Sparrows. Mr. Phipps adds that the corner of Upton Lane where it joins the London Road was called "Polecat Corner," indicating probably a noted haunt of this animal in a parish where, as shown by the price paid for its destruction, it must at one time have been very common. The above entries may be compared with those extracted from the accounts of the Churchwardens for the parish of Bolton Percy, Yorkshire ('Zoologist,' 1881, pp. 257, 258), and Crosthwaite, Cumberland ('Zoologist,' 1882, p. 108). The Churchwardens of Great Wigton, Leicestershire, paid only a penny a dozen for their Sparrows. In their accounts for the year 1620 we find the item, "Paid for 16 dozen Sparrows 0 . 1 . 4." In the Accounts of the Churchwardens of Wigtoft, Lincolnshire, between the years 1512 and 1519, occurs the item, "Payd to Robt. Baddenelle for stopping caudows out, 0 . 0 . 4." *i. e.*, for stopping Jackdaws out of the church. See 'Illustrations of the Manners and Expenses of antient times in England in the 15th, 16th and 17th centuries, deduced from the accounts of Churchwards and other authentic documents, collected from various parts of the Kingdom, with Explanatory Notes. London: Printed by and for John Nicholls, printer to the Society of Antiquaries.' 1797. 4to (pp. 148, 149).

SCIENTIFIC SOCIETIES.

LINNEAN SOCIETY OF LONDON.

April 1.—Sir JOHN LUBBOCK, Bart., M.P., F.R.S., President, in the chair.

Dr. Francis Day exhibited and made remarks on several photographs of the fully-grown skulls of *Salmo salar* and *S. fario*, in proof of the marked cranial differences which exist in the adult stages of the Salmon and Trout.

Several interesting botanical papers were read. In one of these, "Botanical Observations made on a Journey to the Naga Hill (borders of Assam)," by Mr. C. B. Clarke, the author stated that the Nagas eat dog extensively, and that dogs are largely imported for the table from Munipoor. In this respect the Naga natives resemble the Chinese.

April 15.—W. T. THISELTON DYER, C.M.G., F.R.S., Vice-President, in the chair.

Mr. Rochfort Connor, of Greenock, was elected a Fellow of the Society.

The following gentlemen were chosen as Auditors to examine the Treasurer's accounts:—Mr. J. Jenner Weir and Mr. Fred. W. Dickins as representing the Fellows, and Mr. Thos. Christy and Mr. T. B. Forbes as representing the Council.

Specimens of so-called Madrepore Marble from Iowa, U.S., were shown for Mr. G. A. Treadwell, the abundance of *Stromatopora* giving the specimens in question a peculiar character.

A paper was read "On new African Genera and Species of *Curculionidæ*," by Mr. Francis P. Pascoe. The author remarked that the localities from which the greater part of the species described by him were derived are, so to say, new to scientists. They are Momboia, a missionary station north of Lake Nyassa; Landana, a new settlement on the Congo; and Mayotte, one of the Comoro Islands of Madagascar. Mr. Pascoe admits that entomological literature is now so extensive that possibly some of his own supposed new species may already be known; but the difficulty on his part may be more openly due to the inadequate descriptions, without any reference to affinities or diagnostic characters, given by some entomologists. He is inclined to think that a precise diagnosis and considerations of affinity are often of more importance than the mere descriptions themselves. He states that there is probably no family of insects in which greater diversity of appearance in the same genus is to be found than in the *Curculionidæ*. Species the most dissimilar are not to be separated by any characters which are usually deemed to be of generic value, and in extreme cases we have to fall back on secondary characters, which after all may be quite as natural. On the other hand, species which are very much alike in appearance are found to belong to widely different groups: while, again, the absence in many cases of any correlation between the characters makes the classification difficult, and necessitates an undesirable but unavoidable number of genera, if anything like definiteness is to be maintained, under the present conditions of insect nomenclature. Mr. Pascoe acknowledges his indebtedness to Mr. Simpson, of the Geographical Society, and to M. René Oberthur, of Rennes, for their liberality in the presentation of specimens from their collections. The author describes in his paper some thirty-two new species, eleven new genera under nine subfamilies, with illustrations.

An important contribution to the Natural History of the Roraima district, British Guiana, was read by Everard F. im Thurm, the account of the vegetation, however, forming the major share of the material dealt with.

May 6.—Sir JOHN LUBBOCK, Bart., F.R.S., President, in the chair.

Prof. Henry Marshall Ward was elected a Fellow of the Society.

The President alluded to the loss the Society had sustained in the somewhat sudden demise of Prof. Thomas Spencer Cobbold, a Fellow of long standing, and who had contributed many important papers to the Society's Journals and Transactions, his latest paper being now in press. Dr. Cobbold had bequeathed to the Society's library sixty handsomely bound volumes, chiefly rare and valuable monographs on his special subject of parasites. A special vote of thanks was unanimously accorded by the Fellows to Mrs. Cobbold and family for the donation in question.

Mr. Daniel Morris exhibited a number of living beetles (*Pyrophorus noctilucus*) from the island of Dominica. These had been fed on sugar-cane during the voyage to England. On the meeting-room being darkened the phosphorescent show of light emitted was very brilliant.

Mr. George J. Romanes then read a communication on "Physiological Selection; an additional suggestion on the origin of species." He stated that, considered as a theory of the origin of species, Natural Selection encounters three cardinal difficulties: 1st, it cannot explain sterility between species, or the primary specific distribution; 2nd, it cannot explain many among the secondary specific distinctions, or those trivial details of structure which, while serving to distinguish one species from another, present no meaning of a utilitarian kind; 3rd, Natural Selection must always be so heavily handicapped by the swamping effects of intercrossing upon any new variation, that unless such intercrossing is in some way prevented, we may reasonably doubt whether Natural Selection alone could change one *species* into another in more than a very small percentage of cases, although, when intercrossing is prevented by the bar of sterility between species, Natural Selection may afterwards produce genera, families, orders, and classes. In view of these considerations Mr. Romanes contended that the theory of Natural Selection has been misnamed a theory of the origin of species. It is, in truth, a theory of the origin of adaptive structures; and, if unassisted by any other principle, could not effect the evolution of species. The only other principle that could here assist Natural Selection would be one that might mitigate the swamping effects of intercrossing. This may be done by geographical barriers shutting off a portion of a species from the rest, and on allowing that portion to develop an independent course of varietal history without intercrossing with the parent form. It may also be done by portions of species migrating, changing habitual stations, &c. But it may also be done by what he would call Physiological Selection, or by virtue of a variation taking place in the reproductive system in the direction of sterility (whether absolute or partial) with the parent form, without impairment of fertility within the varietal form. For instance, the season of flowering or of pairing may be either advanced or retarded in a portion of a species when all the individuals in that portion (or new variety) would be absolutely sterile towards the rest of the species, while completely fertile among themselves. They would thus start on an independent course of variated history. Sundry other causes (both entrinsic and intrinsic) may determine this particular variation in the reproductive system; and wherever it occurs it must give rise to a new species to record the fact. The proof of its occurrence is furnished both amongst our domesticated varieties and in nature. It explains the sterility between species, the frequent inutility of other specific characteristics, and entirely escapes the difficulty from intercrossing. It therefore relieves the theory of Natural Selection from the disabilities under which it lies in consequence of having been improperly advanced as a theory of "the origin of species." A discussion followed, in which Prof. Duncan, Mr. Breese, Mr. Dyer, Mr. Seebohm, the Rev. R. P. Murray, Mr. Michael, the President, and others, took part.

The following technical paper was subsequently read in abstract, *viz.*, "Descriptions of new species of *Galerucidæ*," by Mr. Joseph S. Baly.—J. MURIE.

ZOOLOGICAL SOCIETY OF LONDON.

April 20.—Prof. W. H. FLOWER, LL.D., F.R.S., President, in the chair.

Mr. O. Salvin exhibited a living specimen of a foreign worm, *Bipalium kewense*, found in a garden in Sussex.

The Secretary read an extract from a letter addressed by Mr. R. A. Sterndale to Sir Victor Brooke, concerning a case of hybridism between *Ovis hodgsoni* and *O. vignei.*

Mr. J. Bland Sutton read a paper in which he gave an account of some of the investigations he had made during the past twelve months into the diseases affecting the Mammals living in the Society's Collection.

A communication was read from Dr. O. Finsch, describing a new species of Wild Pig from New Guinea, which he proposed to call *Sus niger*.

Mr. Smith Woodward read a paper on the relations of the mandibular and hyoid arches in a Cretaceons Shark, *Hybodus dubrisiensis*, Mackie.

A communication was read from Professor R. Collett, of Christiana, containing an account of the hybrid between the Willow Grouse, *Lagopus albus*, and the Black Grouse, *Tetrao tetrix*, which occurs occasionally in Norway, Sweden, and Northern Russia, and of which the author had examined altogether thirteen specimens, most of them of the male sex.

Mr. G. A. Boulenger gave the description of a new Iguanoid Lizard living in the Society's Gardens, for which he proposed the name *Ctenosaura erythromelas*. The exact locality was unknown.

A second paper by Mr. Boulenger contained remarks on specimens of a scarce European Frog, *Rana arvalis*, exhibited in the Society's Menagerie.

May 4.—Prof. W. H. Flower, LL.D., F.R.S., President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of April, 1886, and called attention to an example of a Lizard belonging to a new species of the genus *Ctenosaura*, which Mr. Boulenger had lately descriped as *C. erythromelas*, obtained by purchase; and to a fine male example of the Lesser Koodoo (*Strepsiceros imberbis*) from Somali-land, received in exchange.

Mr. E. L. Layard exhibited a fine example of a rare Beetle of the family *Cerambycidæ* (*Macrotoma heros*), obtained in the Fiji Islands; and a series of specimens of shells of the genus *Bulimus* from New Caledonia and the adjacent islands.

A letter was read from Mr. F. W. Styan, relating to some Chinese animals of which he had lately obtained specimens.

Mr. W. F. Kirby read some remarks on four rare species of *Sphingidæ*, of which he had lately examined specimens.

Mr. F. E. Beddard read a paper containing observations on the ovarian ovum of Lepidosiren (*Protopterus*), and described the entrance of follicular cells into the interior of the ovum. It was believed that these cells played an important part in the formation of the yolk.

Mr. Beddard also communicated a paper by Mr. J. T. Cunningham, on the mode of attachment of the ovum of the Smelt, *Osmerus eperlanus*.

May 18.—Prof. W. H. Flower, LL.D., F.R.S., President, in the chair.

Mr. C. W. Rosset exhibited a series of photographs taken during his recent visit to the Maldive Islands, and made some remarks on the zoological collections obtained during his expedition.

Mr. Philip Crowley exhibited some pupæ of nocturnal Lepidoptera which had been sent to him from Natal; and read some notes from his correspondent, which proved that they were subterranean.

Mr. Joseph Whitaker exhibited a specimen of Wilson's Phalarope, said to have been obtained at Sutton Ambian, near Market Bosworth, in Leicestershire.

A communication was read from Dr. A. B. Meyer, containing an account of the known specimens of King William the Third's Bird of Paradise, *Rhipidornis guglielmi-tertii*, and remarking on a fourth specimen which had been recently obtained by the Dresden Museum.

Mr. Frank E. Beddard read a paper on some new or little-known Earthworms, together with an account of the variations in structure exhibited by *Perionyx excavatus*.

Mr. Sclater read a paper on the species of Wild Goats and their distribution. Mr. Sclater recognised ten species of the genus *Capra*, distributed over an area extending from Spain to Southern India, and from Central Siberia to Abyssinia.—P. L. Sclater, *Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON.

May 5, 1886. — Prof. J. O. WESTWOOD, M.A., F.L.S., Hon. Life-President, in the chair.

Mr. William Saunders, the President of the Entomological Society of Ontario, was present as a visitor.

The following were elected Fellows of the Society, *viz.*:—The Rev. E. N. Bloomfield, M.A., Mr. Frederick Fitch, Mr. A. J. Rose, and Mr. William E. Nicholson.

Mr. Jenner Weir exhibited a large and spiny lepidopterous larva which he had received some years ago from the late Andrew Swanzy, who obtained it in Western Africa.

Mr. Stevens exhibited a number of Coleoptera recently obtained in the Isle of Wight, including *Apion Sorbi*.

Mr. Crowley exhibited four specimens of *Leto Venus*, a large moth belonging to the family *Hepialidæ*, from Natal.

Mr. Howard Vaughan exhibited a long series of *Cidaria immanata* from Kent, Surrey, and other southern counties, Perthshire, Isle of Man, Isle of Arran, the Orkneys, and Shetlands. He also exhibited *C. russata* from various localities in the South of England, and from Perthshire, Argyllshire, and the Islands of Arran, Lewis, and Hoy. Mr. Vaughan further exhibited varieties of *C. suffumata* from Dover and Darlington.

Prof. Westwood commented on the interesting nature of the exhibition of *C. immanata*, and stated that he had never before seen such a wonderful collection of varieties of a single species.

Mr. M'Lachlan exhibited, for Mr. G. Lewis, living specimens of *Paussus Favieri* (Fairm.), lately collected in Portugal by Mr. Lewis.

The Rev. W. W. Fowler exhibited *Staphylinus latebricola* and *Quedius truncicola*, both from the New Forest.

The Secretary exhibited, for Mons. H. de la Cuisine, of Dijon, coloured drawings, life-size, of a variety of *Urania Crœsus*, and a variety of *Papilio Memnon;* and Prof. Westwood made some observations on them.

Mr. G. Elisha exhibited specimens of *Antispila Pfeifferella*, together with the cases, and the leaves mined by the larvæ.

Mr. J. W. Slater read a paper "On the Origin of Colours in Insects," in which he showed that the assertions of Mr. Grant Allen, that all brightly coloured insects were flower-haunting species, were incorrect; and that many brilliantly coloured insects were carnivorous. Mr. M'Lachlan said that the physiological question in connection with colour had not been paid attention to; he thought that colour in insects was to a great extent dependent upon the circulation of fluids in their wings. The discussion was continued by Prof. Westwood, Mr. Goss, the Rev. W. W. Fowler, Mr. Jacoby, and Mr. Weir.—HERBERT GOSS, *Secretary*.

NOTICES OF NEW BOOKS.

The Wanderings of Plants and Animals from their first home. By Victor Hehn. Edited by J. S. Stallybrass. 8vo, pp. 500. London: Sonnenschein & Co.

The history of domesticated animals and cultivated plants is of considerable interest, forming no small part of the history of man himself and his slow advance to civilisation. The subject is susceptible of different methods of investigation which do not always give the same results, the conclusions arrived at varying as they are derived from Natural Science, Ancient History, Literature, or Language.

Prof. Hehn is of opinion that of late years the scientist has had too much his own way, and that it is time for students of History and Philology to be heard. Hence his own work with the above title, which the editor, Mr. Stallybrass, now presents in an English dress.

The first thing that strikes us on looking through the volume is the unskilful arrangement of the subject-matter. The chapters on animals should have been kept distinct from those on plants, instead of being intermingled in the way they are at haphazard. It is distracting and irritating to pass from "the horse" to "the vine," from "asses, mules, and goats" to "stone architecture" (a chapter which might well have been omitted), from "cucurbitaceous plants" to "the domestic fowl," or from "the carob-tree (*Ceratonia siliqua*)" to "the rabbit"!

Both author and editor display an unfortunate want of acquaintance with systematic Natural History, and, strange to say, with the discoveries of Darwin, a shortcoming which has led, amongst other mistakes, to an altogether exaggerated view of the changes which have been effected in the flora of Europe by man's agency.

But confining our attention to that portion of the work which deals with "the wanderings of animals," we may say that, despite the drawbacks to which we have above referred, and a certain heaviness of style not uncharacteristic of German writers, there is a good deal of curious information to be extracted from the book by a patient reader, touching the early history of domesticated animals, and the introduction of species into countries new to them.

A few extracts will suffice to show the writer's style, and the nature of the information afforded:—

(P. 112). "The *mulus* (Greek μυχλος) or mule was brought to Italy, as the name proves, from Greece. The Latin name was afterwards used by all the nations which adopted the animal. In Varro's time, just as now, carts were drawn along the high-roads by mules, which were not only strong, but pleased the eye by their handsome appearance. The Greeks were equally delighted with the animal, and Nausicaa's car is drawn to the sea-shore and back by mules."

"The goat was used as a domestic animal in the mountainous districts of the south, where cultivation more resembled that of gardens than of fields. Stony Attica, rich in figs and olives, nourished innumerable goats; and one of the four old Attic phylæ was named after the goat. Even if the animal came into Europe with the first Aryan immigrants, and accordingly the Hellenes and Italians had not to make its acquaintance after reaching their arid home, yet it was only there, and under the Semitic mode of cultivation there adopted that it found its proper place and true use."

(P. 259). "It is probable that Italy first became acquainted with the domestic pigeon by means of the Temple at Eryx in Sicily. On that mountain, an ancient seat of Phœnician and Carthaginian culture, there lived flocks of white and coloured pigeons sacred to the great goddess there worshipped, and participating in the festivals celebrated in her honour. The Sicilian Greeks, as we infer from the Latin name *columba*, *columbus*, called the bird when they first saw it *kolymbos*, *kolymba*, diver, waterfowl, for the wild doves that inhabited the cliffs, the rocks, and the summits of high trees were dark in 'comparison' with the waterfowl which were distinguished by the adjective white. The Greek *kolymbos* has an analogue in the Lithuanian *gulbe*, and Old Irish *gall*, swan, meaning the white waterfowl. . . . . . . This semi-domestication of the wild pigeon probably existed in very early times, not only in Asia Minor, but in the East in general. . . . . From Italy the domestic pigeon overspread Europe. The Celtic names (Old Irish *colum*, Welsh and Old Cornish *colom*, Breton *koulm*, *klom*), as well as the Slavic names (*golabi*, &c.), were all borrowed from the Latin."

Besides the domestic fowl and the Pigeon, three other birds were brought from Asia to Greece in historic times, "to satisfy the desire for wider and richer experience excited by higher stages of civilisation." These were the Peacock, Guinea-fowl, and Pheasant (p. 264):—

> "The Greek name for the Peacock *taos* (which in Attica was quite exceptionally pronounced *tahos*), proves it to have been introduced to the Greeks from Semitic Asia. Probably the first place at which peafowl were kept on Greek soil was the Heræum of Samos, for the legend of that temple makes it the spot where peacocks first originated, and whence they were introduced into other countries."

The Greeks called the Peacock *tawos, tawon, tahos;* the Romans called it *Pavus* or *Pavo, pavonis.* This substitution of a *p* for a *t* is explained by a supposed difference in Semitic dialects (p. 269). In all the European languages the name of the Peacock begins with the Latin *p*, and not with the Greek *t*, a clear proof that the bird was introduced into barbaric Europe, not from Greece or the East, but from the Appenine peninsula.

The chapter on the Pheasant (pp. 274—276) is short and not very satisfactory; although the remarks on the derivation of the word *tetrao* (from the Median and Persian), and its misapplication to other species supposed to resemble Pheasants, are worth perusing.

Besides those mentioned, other birds dealt with are the Guinea-fowl, Goose, and Duck, with a chapter also on Hawking. The Mammalia treated of are the Horse, Ass, Mule, Goat, Rabbit, Ferret, Cat, and Buffalo.

The Birds of Cumberland critically studied: including some Notes on the Birds of Westmorland. By the Rev. H. A. Macpherson, M.A., and William Duckworth. 8vo, pp. 206. Carlisle: Thurnam & Sons. 1886.

Considering the state of existing literature on the Natural History of the two counties above mentioned, a brief sketch of which will be found in the Introduction to the present volume, Messrs. Macpherson and Duckworth's account of the Cumbrian avifauna has been undertaken none too soon. It would have been difficult, perhaps, to effect a more satisfactory literary partnership than that which has been arranged; for while Mr. Macpherson's energy as a collector and acquaintance with the published observations of his predecessors have enabled him to bring together a considerable amount of useful material, Mr. Duckworth contributes the results of twenty years' investigation of the Ornithology of his county. In addition to this Mr. Duckworth has paid special attention to such inland breeding species as the Dipper and Pied Flycatcher; while Mr. Macpherson has made himself more particularly acquainted with such birds as frequent the marshes and the coast-line; although neither author apparently has confined his observations to any one group, or to any one part of the county. As a result they have prepared a list of 250 species, of which 84 are stated to be resident, 81 periodical migrants, and 85 rare visitants.

As might be expected from the physical features of the Lake District, there are several species of birds which, if not peculiar to the two counties mentioned, are at all events characteristic of them, and which at the present day are perhaps commoner there than in any other part of England. Amongst these may be mentioned the Common Buzzard, Peregrine, Merlin, and Raven, all of which still breed in the Lake District, although in diminished numbers. Along the mountain streams the Dipper and Grey Wagtail are commonly to be met with, the former, it is said, having increased of late years. The Pied Flycatcher is another bird which is said to be more numerous than it used to be a few years ago, and the Twite and Lesser Redpoll are characteristic moorland species.

Taking Dr. Heysham's Catalogue of the Birds of Cumberland in Hutchinson's History of the County (1797) as a standard for comparison, Messrs. Macpherson and Duckworth have made some interesting additions to it from recent observation and correspondence. For example, they tell us that the Chough, which is not included in Dr. Heysham's list, was certainly resident in Cumberland during the first half of the present century, and, until about the year 1860, used to breed regularly at St. Bee's Head. The Stock Dove also, about which Dr. Heysham was uncertain, is now considered to be resident in Cumberland, and to have extended its breeding range considerably.

It is of interest to note that a couple of centuries ago the Pheasant became exterminated in Westmorland, in consequence of the extensive cutting down of woods which then took place, and that it was subsequently reintroduced. In the Machell MSS., preserved in six volumes in the library of the Dean and Chapter of Carlisle, being collections for a history of the counties of Westmorland and Cumberland, formed by the Rev. Thomas Machell, Rector of Kirby Thore, who died in 1698, the following note occurs (vol. i. p. 137) on the Pheasant in Westmorland:—

> "They have no Phesants. The species of them being soe tame a fowle are long since destroyd, and, since the great forrests have bin depopulated of their wood and verdure, so that there is little or none on the mountanes for want of copses and covert, to fly too at severall stages, they could never yet be restored agane. But it hath bin lately attempted by Mr. Lowther to restore that game who 2 or 3 years since brought young ones over out of Yorkshire hither; but the country people destroy'd them before they increased to any considerable replenneshing number."

The editors of Hutchinson's 'History of Cumberland,' in a note to the account of the parish of Muncaster, remark that the game of the district consisted of Hares, Partridges, Grouse, and some Pheasants *introduced by Lord Muncaster.* Dr. Heysham, writing about the same time (1794—97), remarked, "The Pheasant is a rare bird in Cumberland, but Sir James Graham and some other gentlemen are attempting to introduce them into the county." At the present time it is once more abundant; while the attempts to introduce the Capercaillie on the Netherby Estate have failed.

Our readers may perhaps remember that in 'The Zoologist' for 1881 (pp. 44 - 47), Mr. A. G. More detailed the result of his inquiries into the statements made by Pennant and Latham, and repeated by later writers, to the effect that the Ptarmigan was formerly to be found upon the lofty hills near Keswick, in Cumberland; the conclusion at which he arrived being that the so-called Ptarmigan were merely Grouse having an unusual amount of white in their plumage. According to Messrs. Macpherson and Duckworth, however, there really were Ptarmigan at one time on Skiddaw, some having been imported from Scotland and turned out there within the memory of a correspondent still living at Bassenthwaite. It would be interesting to ascertain, while the correspondent referred to is still living, the precise date of this attempted introduction, which we are told was a failure, the number of birds turned out, and whether any broods were ever reared before the stock was extirpated.

Those who are aware of the rarity of the Dotterel (*Eudromias morinellus*) in England during the nesting season will naturally turn with curiosity to the account given of that bird in the book before us (pp. 133—138), the greater part of which consists of a narrative by Mr. F. Nicholson, "embodying the results of an unequalled acquaintance" with this bird in its north-country breeding haunts. While referring to the older records relating to this species, our authors might as well have noticed "the mical Doterall," mentioned in the Machell MSS. (vol. i. p. 137), and called the "mical" (*i. e.*, mickle or great) Dotterel, to distinguish it from the smaller Ringed Dotterel (*Ægialitis hiaticula*). This allusion to the Machell MSS. reminds us that it would have been better to mention these in the Introduction, under the head of MS. information (p. xv), instead of by way of Appendix at the end of the volume.

On the same page of the Introduction it would have been well to give *the date* (1675) of Edmund Sandford's MS. Description of Cumberland, or rather the MS. which is attributed to Sandford (a gentleman of good family in the county), for we believe his name does not occur on the face of it. We have not had an opportunity of consulting the original MS., which is preserved in the library of the Dean and Chapter of Carlisle, but, if Jefferson's quotation from it be accurate (Hist. and Antiq. Carlisle, 1838, p. 361), it will be necessary to make a slight correction on page 125 of the 'Birds of Cumberland,' namely, for "black heath cocke and more cockes" read "black heath-cockes and brone more-cockes."

At p. xiii of the Introduction, Mr. Macpherson, referring to Robinson's 'Essay towards a Natural History of Westmorland and Cumberland,' 1709, says that this author records the presence of Swans in the lakes [Bassenthwaite Lake, p. 60], "but his ocular observations appear to have been confined to subterranean matters." This is not quite correct, for in the second part of the book, on "The Power of Natural Instinct," are several original observations on Frogs, Ants, Bees, and Birds, some of which might have been appropriately quoted under the head of the species to which they relate. As the book in question is not a particularly common one, we may quote two of the observations relating to birds, one having reference to the Moorhen, the other to the Rook :—

> "We observe that when the Moorhen finds her nest likely to be discovered, she flies from it as if she were broken-back'd, and lame both of wing and limb, tempting her enemies to pursue her in hopes to take her, 'till the sight of her nest be lost" (p. 95).

The observation relating to the Rook runs as follows:—

> "About 25 years ago, coming from Rose Castle early in the morning, I observed a great number of Crows (*sic*) busy at their work. upon a declining ground of a mossy surface; I went out of my way on purpose to view their labour, and I found they were planting a grove of oaks: the manner of their planting was thus, they first made little holes in the earth with their bills, going about and about; 'till the hole was deep enough, and then they dropp'd in the acorn and covered it with moss. This young plantation is now growing up to a thick grove of oaks fit for use, and of height for the Crows to build their nests in. I told it to the owner of the ground, who observed them spring up, took care to secure their growth and rising. The season was the latter end of autumn, when all seeds were full ripe" (p. 97).

Another observation on the behaviour of young Turkeys when the Kite comes (p. 95) testifies to the former existence in Cumberland of a bird of prey, which is now extinct there.

In regard to classification and nomenclature, we perceive that Messrs. Macpherson and Duckworth have followed 'The Ibis' List of Birds, but in spelling specific names *with capitals* they have adopted an unsightly practice which is not sanctioned either by the British Ornithologists' Union or by the American Ornithologists' Union, whose recently published 'Code of Nomenclature and Check List of North American Birds' was noticed in our last number.*

We could point out a good many more misprints in the 'Birds of Cumberland' than are corrected in the list of errata, but we prefer to direct attention to the "Glossary of Names used in Cumberland' (pp. 195—197), and to the neat folding map which precedes the Introduction.

A coloured plate of the Dotterel by J. G. Keulemans forms an appropriate frontispiece.

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* In the notice referred to, on p. 223, two unfortunate typographical errors escaped correction. In line 21 for "moth" read "motto," and in the last line but one on the same page, for "recommendation" read "reconsideration."

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